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Continuous Spinal Anesthesia for Total Knee Arthroplasty Revision in a Patient with Severe Pulmonary Hypertension

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INTRO

- Pulmonary hypertension (PH) poses significant challenges for anesthetic management
- Neuraxial/Regional anesthesia is generally preferred over general anesthesia for these patients undergoing lower extremity surgery
- Continuous spinal anesthesia (CSA) is a feasible option

CASE

- 67-year-old M with severe PH, h/o PE, OSA, super-morbid obesity who presented for knee arthroplasty revision for chronic PJI
- Large bore IV access and arterial line placed on arrival to OR
 - CSA initiated: 19G catheter inserted through Tuohy needle at L3-4
 - Incremental boluses of isobaric bupivacaine to achieve T12 level
 - Surgery lasted ~4.5 hours
 - Additional boluses of bupivacaine required
 - Judicious dexmedetomidine, midazolam, fentanyl
 - CSA catheter removed at end of surgery
 - Post-op single-shot adductor canal block

**Continuous spinal anesthesia
is a suitable choice for
patients with pulmonary
hypertension undergoing
major lower extremity
orthopedic surgery**

DISCUSSION

Neuraxial techniques for lower extremity surgery:

- Single dose spinal
 - Pros: dense block, quick confirmation, reliable
 - Cons: profound sympathectomy, cannot extend block
- Combined spinal epidural
 - Pros: dense primary block, can prolong block
 - Cons: profound sympathectomy, unable to confirm proper epidural placement early
- Continuous epidural
 - Pros: incremental dosing
 - Cons: relatively high failure rate
- CSA
 - Pros: low failure rate, incremental dosing, less intense sympathectomy
 - Cons: risk of PDPH, cauda equina syndrome

CONCLUSION

- CSA is a suitable anesthetic choice for PH patients undergoing major lower extremity surgery

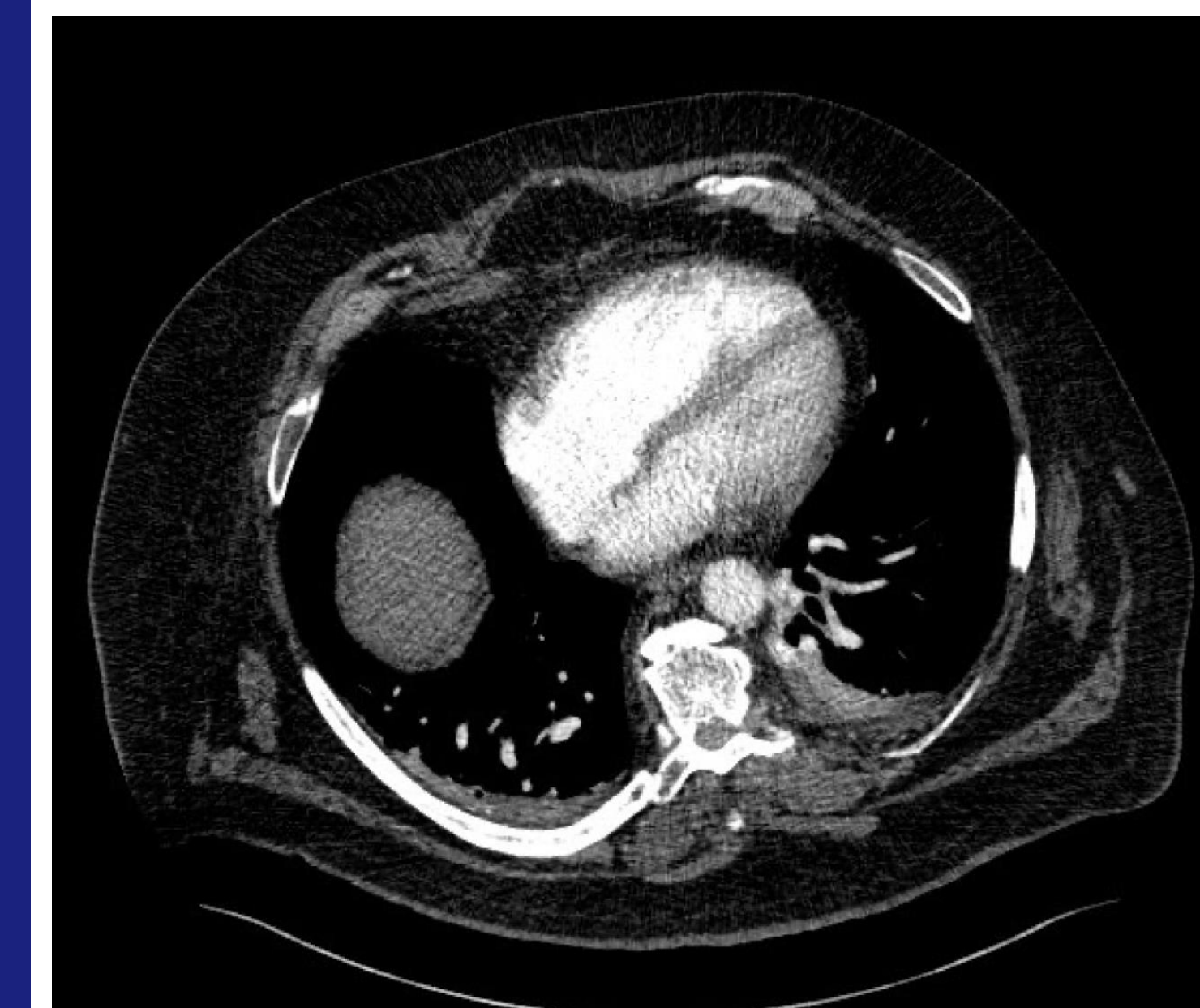


Figure 1: CT Chest with IV contrast depicting dilated RV and flattened interventricular septum secondary to severe pulmonary hypertension.



Figure 2: Depiction of continuous spinal anesthesia catheter placement through Tuohy needle